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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/01/2006

Ralph Edmund Harris

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23117

7590

04/30/2009

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EXAMINER

DITRANI, ANGELA M

ART UNIT

PAPER NUMBER

3676

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/594,568	<b>Applicant(s)</b> HARRIS ET AL.	
	<b>Examiner</b> Angela M. DiTrani	<b>Art Unit</b> 3676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 41-67 and 76 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 41-67 and 76 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/08/09, 04/14/09</u> .                                      | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/12/09 has been entered.

### ***Claim Objections***

2. Claims 41-67 and 76 are objected to because of the following informalities: "Hyrolyse" and "Hydrolysing" should be replaced with –hydrolyze- and –hydrolyzing- throughout the claims to correct the misspelling thereof. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 44 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant is required to amend claim 44 so as to put the limitation therein in proper Markush form.

5. Claims 44 and 59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which

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applicant regards as the invention. Each of claims 44 and 59 includes the phrase "optionally." It is not clear as to whether the limitations that follow the phrase are required by claims. For examination purposes, should the prior art not be found to include the limitations following the term "optionally," the reference will still be considered to anticipate/obviate the claim insofar as because the limitations that follow the term "optionally" are not considered to be required by the claims.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 41-45, 51-58, 60-63, and 66 are rejected under 35 U.S.C. 102(b) as being anticipated by Harris et al. (WO 00/57022 - cited and provided by Applicant with IDS receipt date 09/27/06).

With respect to independent claim 41, Harris et al. discloses a process for disrupting filter cake in an underground formation (p. 2, l. 15-28) which process comprises: incorporating into a treatment fluid a solid polymer capable of being converted by hydrolysis into one or more organic acids (p. 3, l. 15-28; p. 5, l. 29 - p. 6, l. 26); introducing the treatment fluid into said underground formation containing said filter cake; and allowing the solid polymer to hydrolyze in the presence of water to produce organic acid such that the acid soluble material within the filter cake or adjacent formation is dissolved (p. 3, l. 5-10).

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With respect to depending claims 42-45, 51-58, 60-63, and 66, the reference discloses wherein the polymer is a polyester, an aliphatic polyester, or a polymer which comprises one or more selected from the group as claimed (p. 5, l. 29 - p. 6, l. 26); wherein the hydrolysis of the solid polymer produces lactic acid or glycolic acid (p. 6, l. 15-16); incorporating a buffer into the treatment fluid (p. 5, l. 7-27); incorporating one or more polymer breakers into the treatment fluid (p. 3, l. 30 – p. 5, l. 27; p. 7, l. 25 – p. 11, l. 2), and, further wherein the polymer breaker is a hydrolase enzyme (p. 9, l. 5-10), a polysaccharide hydrolyzing enzyme (p. 8, l. 12-19), a polymer breaker which can hydrolyze starch, xanthan, cellulose, guar, scleroglucan or succinoglycan or a derivative of any one of the polymers (p. 8, l. 17-19), an oxidant, wherein the oxidant is selected from the group as claimed (p. 7, l. 28 – p. 8, l. 5; p. 8, l. 21 – p. 9, l. 3), and wherein the polymer breaker is in the form of a delayed release preparation (p. 13, l. 16-17); wherein the treatment fluid disrupts or degrades at least a portion of the filter cake and increases the permeability of the formation (p. 2, l. 15-28; p. 14, l. 13-25); wherein at least a portion of the polymer remains in the underground formation and continuously releases organic acid and a production chemical during hydrocarbon production or water injection until the polymer has completely hydrolyzed (col. 6, l. 28 - p. 7, l. 2; p. 14, l. 27-30); wherein the underground formation contains a hydrocarbon or water and wherein the process further comprises recovering hydrocarbon or water from the treated formation (p. 3, l. 12-13; p. 14, l. 29-30); wherein the treatment fluid containing the solid polymer is introduced into the formation via a well bore which extends to the formation (p. 2, l. 15-27; p. 14, l. 4-30); and wherein the treatment fluid further comprises calcium peroxide

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and wherein the organic acid produced by hydrolysis of the solid polymer leads to the generation of hydrogen peroxide (p. 5, l. 4-5).

***Claim Rejections - 35 USC § 103***

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 46-50 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harris et al. as applied to claim 41 above, and further in view of Willberg et al. (US 7,265,079 – cited in previous action).

Harris et al. discloses the method as provided above with respect to independent claim 41. The reference, however, fails to explicitly state wherein the solid polymer is polylactic acid or polyglycolic acid. Willberg et al. teaches solids capable of hydrolyzing to produce organic acids capable of dissolving acid soluble material in a filter cake or formation wherein, like Harris et al. discloses, the acid pre-cursors comprise cyclic esters for the purpose of slowly hydrolyzing at a controllable rate to release acid at a pre-selected location and time so as to dissolve at least a portion of the acid-reactive material therein. Willberg et al. further teaches wherein the solid acid pre-cursor cyclic esters used for this purpose comprise polylactic or polyglycolic acid (col. 3, l. 50-67). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ polylactic acid or polyglycolic acid as the ester within the method of Harris et al. in order to provide for a controlled release of acid within the filter cake degradation method therein.

With respect to depending claims 47-49 and 76, Harris et al. discloses the method as provided above with respect to independent claim 41, and, further, wherein the treatment fluid comprises an acid, along with other materials, such as oxidants and enzymes. These other material are disclosed by Harris et al. to have functional activity for filter cake treatment or as production chemicals (p. 13, l. 19- p. 14, l. 2) as claimed in further depending claims 49 and 76. The reference, however, fails to teach wherein the one or more other materials are incorporated into the solid polymer by encapsulation to allow their release coincident with or after acid production or wherein the one or more other materials are incorporated into the solid polymer by dissolution or dispersion to allow their controlled release coincident with acid production as claimed. Willberg et al. discloses incorporation of additional materials that react with the hydrolysis products wherein the additional materials can be incorporated with the solid polymer or encapsulated therewith, for the purpose of providing for the release of both components at the same location at the desired time. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include the other materials used within the treatment fluid of Harris et al. with the solid polymer by dissolution or dispersion or by encapsulation in order to release both components at the desired location within the well so as to enhance the filter cake and well bore clean-up obtained therewith.

With respect to depending claim 50, Harris et al. fails to explicitly disclose the shape of the solid ester dispersed throughout the disclosed treatment fluid. Willberg et al. discloses the use of solid polymer esters as does Harris et al. wherein the acids may

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be manufactured in various solid shapes, such as fibers, beads, films, ribbons, and platelets for the purpose of providing a solid ester to a formation that is capable of hydrolyzing within a subterranean formation (col. 4, l. 41-44). Therefore, it would have been an obvious matter of choice or design to one having ordinary skill in the art at the time the invention was made to employ the esters of Harris et al. in a form as claimed in order to yield the predictable result of providing the ester in a form capable of hydrolyzing to produce an organic acid within the subterranean formation.

10. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harris et al. as applied to claim 41 above, and further in view of Harris et al. (WO 01/02698 – cited in previous action, '698 herein).

Harris et al. discloses the method as provided above with respect to independent claim 41. The reference, however, fails to disclose wherein the treatment fluid is a gravel packing fluid which comprises one or more solid polymers as claimed. '698 teaches a method of treating a subterranean formation wherein the treatment fluid may comprise an ester dispersed in water that hydrolyzes to produce an organic acid to dissolve acid soluble material present within the reservoir wherein the fluid may be incorporated within a gravel packing fluid for the purpose of treatment of filter cakes following gravel packing operations by incorporation of suitable components into the gravel packing fluid (p. 3, l. 4-7). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the treatment fluid of Harris et al. as a gravel packing fluid in order to treat a filter cake following a gravel



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packing operation, thereby enhancing subsequent production within the gravel packed well.

11. Claims 64 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harris et al..

Harris et al. discloses the method as provided above with respect to independent claim 41, and, further, wherein the treatment fluid is capable of breaking polymers such as xanthan, cellulose, and guar (p. 8, l. 17-19). The reference, however, fails to explicitly disclose wherein the treatment fluid comprises an acid sensitive viscosifying agent, wherein the viscosifying agent is crosslinked guar gum, and wherein the viscosity of the fluid is reduced by the acid generated by hydrolysis of the solid polymer as claimed. The Examiner hereby takes Official Notice in that it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide for a viscosifying agent, such as crosslinked guar gum, within the treatment fluid of Harris et al. in order to viscosify the fluid within those environments in which an increased viscosity is required to deliver the treatment fluid to the formation, insofar as because the use of crosslinked guar gum to viscosify fluids is well known within the art. Since Harris et al. discloses the capability of the treatment fluid to break polymers including guar, the viscosity of the crosslinked guar gum is capable of being reduced by the acid generated upon hydrolysis of the solid polymer as claimed.

12. Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harris et al. as applied to claim 41 above, and further in view of Constien (US 6,831,044 – cited in previous action).

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With respect to depending claim 67, Harris et al. discloses the method as provided above with respect to independent claim 1. The reference, however, fails to explicitly disclose wherein the treatment fluid comprises ammonium bifluoride and wherein the organic acid produced by the hydrolysis of the solid polymer leads to the generation of hydrogen fluoride as claimed. Constien teaches an organic acid treatment composition comprising an ester and acid producing material, wherein the acid is preferably a solid at standard conditions; the organic acid may be used in combination with ammonium bifluoride for the purpose of degrading filter cakes with a more effective composition that is used to hydrolyze polysaccharide materials (see col. 7, lines 21-46). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate ammonium bifluoride within treatment composition of Harris et al. in order to enhance the treatment operation therein.

### ***Response to Arguments***

13. Applicant's arguments with respect to claims 41-67 and 76 have been considered but are moot in view of the new ground(s) of rejection in light of Applicant's amendments to independent claim 41.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela M. DiTrani whose telephone number is (571)272-2182. The examiner can normally be reached on M-F, 6:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer Gay can be reached on (571)272-7029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AD

04/22/09

/Zakiya W. Bates/  
Primary Examiner, Art Unit 3676